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ABSTRACT

As part of a periodic evaluation of the occupational programs at Caldwell Community College and Technical Institute (CCC&TI), a study of the radiography program was conducted to collect information to facilitate planning, aid in program improvement, and meet accountability demands. The specific objectives of the program evaluation were to determine whether program objectives were being met; to measure student, instructor, and employer satisfaction with the program; and to inform the public of the outcomes of educational expenditures. Evaluation data were collected from 34 of the 66 graduates, 4 of the 31 early leavers, 12 of the 19 employers of graduates, and 8 of the 16 program advisory committee members who were surveyed, as well as from 10 student supervisors and instructors. Study findings revealed: (1) all students graduating after 1977 and 69% of those graduating earlier were employed in the field of radiography; (2) 89% of the recent graduates and 88% of the earlier graduates rated the radiography program as good or excellent; (3) 33% of the employers rated CCC&TI graduates as better than other schools' graduates; (4) the employers were most impressed with the graduates in the area of providing patient care, while graduates felt most confident in the area of professional ethics; and (6) specific program needs were identified in the areas of equipment, instructional and skill training, professional development and continuing education. The questionnaire and separate survey reports are appended. (HB)

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EVALUATION OF THE RADIOGRAPHY PROGRAM AT CALDWELL COMMUNITY COLLEGE AND TECHNICAL INSTITUTE SUMMER, 1982

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CALDWELL COMMUNITY COLLEGE AND TECHNICAL INSTITUTE

JC 830 003

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Abstract

Title: Evaluation of the Radiography Program at Caldwell Community College and Technical Institute - Summer, 1982

Author: V. David Pipes, Program Evaluation Coordinator

Statement of the Problem: This study was one in a series designed for the periodic evaluation of all occupational programs at CCC & TI. The purpose of this and the other studies is the collection of information and judgements to facilitate planning, to aid in the improvement of programs, and to meet accountability demands. Some of the more specific objectives of the evaluation of the radiography program are to determine whether program objectives are being met, to measure program success in terms of student, instructor, supervisory and employer satisfaction, to identify aspects of the program needing improvement, and to inform the public of the outcomes of educational expenditures.

Procedure: The evaluation process is designed to allow all staff to participate in activities that directly affect them. A Survey Instrument Planning (SIP) committee developed or modified all survey instruments used in the evaluation process. This committee consisted of the department chairperson for business programs, radiography instructors, the Dean of the Office of Educational Development, the Director of the Learning Resource Center, the Dean of Student Development and the program evaluation coordinator.

Information was gathered through surveys of program graduates, employers, the advisory committee, program instructors and the department chairperson. Information from these sources was then compiled and analyzed.

The Results:

Identified Program Strengths -

1. a high rate of graduate certification (97%) by the American Association of Radiographic Technologists (AART) as reflected by survey responses;
2. a high rate of employment (85%) in the field of radiography (of the five not employed as radiographers, two (2) are physicians assistants, one (1) is a nuclear medicine technologist, one (1) prefers not to work and one (1) cannot work);
3. didactic training is strong, especially in the areas of providing patient care, radiation protection, radiograph production and assisting the radiologist (professional ethics also received high marks but with qualifying remarks by employers);
4. breadth of clinical experience for students in multiple affiliate hospitals leading to greater adaptability to varied procedures, situations and equipment;
5. significant numbers of graduates obtaining or pursuing degrees beyond the A.A.S. degree (45% of recent graduates and 38% of early graduates);
6. significant numbers of graduates (62%) employed in Caldwell or surrounding counties;
7. high ratings of the quality of instruction by graduates (32% rated it "excellent" and 56% rated it "good");
8. graduates receive good ratings from employers (33% rated our graduates as "some better" than graduates of other programs);
9. graduates (will continue to be in demand based on employer predications (50% predicted increasing labor demands and another 42% predicted stable demand);
10. excellent resources and services available through the LRC; and
11. strong leadership provided by the department chairperson through fairness and excellent interpersonal skills;

Identified Program Needs -

Equipment

1. Franklin head unit;
2. radiographic positioning doll;

Instruction and skill training

1. strengthened instruction in the areas of equipment maintenance, calculation techniques, supplies maintenance, and situation analysis;
2. emphasis on professional ethics and student preparation concerning employer expectations of work habits, attitude and work quality;
3. analysis and strengthening of clinical supervision of students and of the clinical experience;
4. recognition of and exposure to new modalities of ultrasound, computer tomography and digital radiography;
5. increased emphasis on x-ray physics in physics classes taken by radiography students;

Professional Development

1. increased funding and time provisions for professional development activities by instructors;

Continuing Education

1. review workshops in calculation techniques and equipment maintenance; and
2. workshops addressing new developments, procedues and equipment, especially

Evaluation of the Radiography Program
at Caldwell Community College and Technical Institute
Summer, 1982

Introduction

Evaluation of occupational programs is essential to determine their worth and to provide for continued improvement and effectiveness. The word "evaluation" has many different meanings depending upon the need it is designed to meet and whether the focus is on process or product. The working definition used in the evaluation of programs at CCC & TI is as stated by Wentling (1980). He defines evaluation as

> ". . . the collection of information and judgements to facilitate planning, to aid in the improvement of programs, and to meet accountability demands."

The Executive Council of CCC & TI has stated that the purpose of program evaluations is to meet the following seven objectives:

1. to gather information relative to program planning and decision-making;
2. to determine whether program objectives are being met;
3. to identify aspects of a program needing improvement;
4. to determine resource allocations for a program;
5. to measure program success in terms of student and/or employer satisfaction;
6. to inform the public of outcomes of educational investments and expenditures; and
7. to verify that programs are meeting state, federal and voluntary accrediting agency mandates.

An eighth objective to be met by the Business Office is to measure the cost effectiveness of programs.

Evaluation Organization

Evaluation Coordinator

The Evaluation Coordinator is responsible for coordinating the evaluation process for each data source. This person is also assigned the responsibility of receiving, organizing, maintaining, and reporting data that relate to an instructional program or to individual personnel within a program.

Survey Instrument Planning (SIP) Committee

Program evaluation at CCC & TI is designed to allow all staff to participate in evaluation activities that directly affect them. Faculty members also are represented in planning committees related to the evaluation of programs in which they teach.

At the outset of each program evaluation a Survey Instrument Planning (SIP) committee is appointed. This committee develops or modifies all survey instruments and assists in the coordination of evaluation activities. This committee consists of the following members:

- the department chairperson for the program being evaluated;
- program instructors;
- an LRC representative;
- a Student Development representative;
- the Dean of the Office of Educational Development; and
- the evaluation coordinator.

Method of Evaluation

The basic strategy of the evaluation process is to generate input from as many appropriate sources as possible. For the Radiography Program, these included the following:

- program graduates;
- early leavers, i.e. students who discontinue their studies before completing the program;

- employers of graduates;
- advisory committee members;
- instructors; and
- the department chairperson of allied health.

Information from these sources is then compiled and analyzed. Appropriate reports are then distributed to the Executive Council, the department chairperson, the LRC director, the Dean of Student Development, the instructors, the program advisory committee and the CCC & TI archives.

The Radiography Program

The advance of scientific knowledge in the medical field and the increase in services offered by hospitals and health centers have greatly increased the need for competent radiographers. The radiographers perform an important function in the rapidly growing branch of medicine known as radiology. Radiographers are support personnel for radiologists, and they specialize in the use of X-rays and other forms of ionizing radiation.

The radiographer should like people and be able to attend the sick and disabled with tact and sympathy. He/she should be dependable, accurate, and determined to continue with education beyond certification to keep up with new developments in the field.

The program in radiologic technology offered by Caldwell Community College and Technical Institute provides an opportunity for immediate employment as well as for continuing one's education at a senior institution or in programs of nuclear medicine and radiation therapy. Graduates of the associate in applied science degree program are eligible to take the American Registry in Radiologic Technology examination and, upon successful completion of this test, may become a registered radiographer.

Satisfactory placement scores in reading, math, and English must be achieved prior to entry into this program. The radiologic technology program is a 24-month program. A grade of "C" must be maintained in all radiology courses. The clinical technique courses will be of 12 weeks duration.

Survey Process and Response Rates

The Graduate Surveys

Graduates of the radiography program were divided into two groups: "early," (Appendix A) and "recent" (Appendix B). Early graduates were defined as those former students who graduated before 1977. Recent graduates were those who graduated in 1977 or afterwards.

These groups were sent different survey forms. Both surveys were identical through the first twelve questions. Beyond question 12, the recent graduate form asked for a more detailed evaluation of the program and related student development and Learning Resource Center services.

An initial mailing of surveys was followed by a second mailing to non-respondents. Of the twenty-seven (27) early graduates contacted, sixteen (16) responded for a response rate of 59%. Of the thirty-nine (39) recent graduates contacted, eighteen (18) or 46% responded. The combined response rate was 52%.

Early Leaver Survey

Thirty-one (31) early leavers were contacted through two mailings of surveys. Only four (4) or 13% returned completed forms. The low response rate from this small group invalidates any conclusions which might be based on results of this survey. Also, one respondent was a special credit student only taking courses during a summer quarter.

A summary report of this survey may be found in Appendix C.

The Employer Survey

Names of employers were compiled from graduate survey returns. In addition, all local employers were surveyed for a total of nineteen (19) employers. Twelve (12) responses were received for a 63% response rate.

All employers surveyed had employed or were currently employing one or more radiography graduates. Four (4) or 33% of the responding employers have had ten (10) or more graduates in their employ.

The summary report on employer responses can be found in Appendix D.

Advisory Committee Survey

On April 8, 1982, the program evaluation coordinator explained the evaluation process to advisory committee members during a scheduled meeting. Evaluation forms were distributed to committee members at that time. Absent members were sent a copy of the minutes of the meeting, evaluation forms, and a letter explaining the evaluation process. Eight (8) of sixteen (16) committee members completed and returned their evaluation forms for a 50% response rate. The advisory committee survey summary can be found in Appendix E.

Supervisory and Instructor Evaluations

All instructors in the radiography program, including clinical site instructors, were given evaluation forms. A total of nine forms were completed and returned.

Instructors were given the opportunity to evaluate the radiography program, student support services including LRC services, and the department chairperson for allied health programs. The complete summary of these evaluations can be found in Appendix F.

The department chairperson evaluated the two (2) on-campus radiography instructors, the radiography program and student support services. Evaluations

of instructors were to be shared with the instructors in private conferences and kept confidential. The supervisor's other evaluations can be found in Appendix G.

Survey Results

The Graduate Respondents

The radiography program is essentially a day program. Only one early graduate considered himself an evening student. A recent graduate indicated she had attended both day and evening classes in completing her program.

Survey responses indicate that increasing numbers of radiography students are working while in school. The percentage of students working while in school increased from 62% for early graduates to 83% for more recent graduates.

The average number of hours worked per week by those working part-time remained about the same. Early graduates worked an average of twenty-one (21) hours per week while recent graduates worked an average of nineteen (19) hours per week. One recent graduate worked full-time while completing the program.

Employment of Graduates

All recent graduate respondents indicated that they were employed in radiography. Among early graduates, 69% are currently employed in the field. Three (3) or 19% stated that they are now employed outside their field of training but all three (3) said their training had been useful in their present positions. Two (2) are now physician's assistants and the other continued his training in nuclear medicine.

Two (2) early graduate respondents are unemployed. One (1) prefers not to work and one (1) cannot work.

The majority (62%) of the graduates employed in radiography are working in Caldwell or surrounding counties. Five (5) or 17% work outside this geographical area but remain in North Carolina. Only two (2) graduates, one (1) early and one (1) recent, have left the state. Four (4) recent graduates gave no indication where they are now located.

Income of Graduates

Graduates were very willing to share information regarding their incomes. Only 15% did not respond to this request.

Among recent graduates, only one (1) was earning less than $6.00 per hour. This person indicated that this was not an acceptable rate of pay for two years of training. The majority were making between $6.00 and $7.00 per hour. As a group, 55% of the recent graduates felt that their rate of pay was acceptable while 38% stated dissatisfaction.

Among early graduate respondents, no one was earning less than $7.00 per hour and most (56%) were earning over $8.00 per hour. As a group, they expressed greater satisfaction with their earnings than recent graduates. Only two (2) early graduates felt their pay rate was unacceptable and both were making over $8.00 per hour.

These results indicate that some students of the program may have unrealistic expectations concerning pay rates offered to the newly graduated.

Certification

All graduate respondents are currently certified by the American Registry of Radiologic Technologists (ARRT) even though two (2) are unemployed and three (3) are employed in other fields. One early graduate did not respond to any questions on the back of the survey form but indicated on the front side that she is employed as a radiographer. It is assumed that she, too, is certified.

Ratings of the Quality of Instruction

Radiography graduates, both early and recent, gave high marks to the program in its overall quality of instruction.

Two (2) early graduates did not respond but four (4) or 25% rated instruction as "excellent." The remaining 63% gave instruction a "good" rating.

Seven (7) or 39% of the recent graduates gave instruction "excellent" ratings and nine (9) or 50% rated it "good." However, two (2) respondents or 11% gave "adequate" ratings.

Combining the responses of both groups, 32% rated instruction as "excellent," and 6% made no response. There were no "poor" ratings.

Ratings of Students by Employers

Employers were asked to rate our graduates on a scale of "much better" to "much poorer" compared to graduates from other programs. Responses seem in line with graduate ratings of the quality of instruction. Thirty-three percent of the employers rated our graduates as "some better," and 50% as "about the same."

Only one (1) employer gave a rating of "slightly poorer." This employer had only employed a single graduate from the program.

Another employer did not respond to the question.

Would They Do It Again?

In addition to rating the quality of instruction, graduates were asked "If you had it to do over again, would you choose the same program?" They were also asked if they would choose CCC & TI again.

Approximately the same percentages of early and recent graduates, 69% and 72% respectively, stated that they would choose radiography again.

Of the four (4) early graduates who gave "no" responses, only two (2) indicated they would not choose CCC & TI again. Both of these respondents stated that they would have preferred to have choosen a four-year institution.

Five (5) recent graduates would not have chosen the radiography program again but only one (1) of those would not have chosen CCC & TI again. This person also would have preferred a four-year institution.

This speaks well of the opinion our graduates have of CCC & TI in general. Those who would have chosen a different program evidently saw this as a problem of career choice rather than institutional choice, since no one stated a preference for another two year institution over CCC & TI.

Training/Evaluation beyond A.A.S. Degree

A significant number of graduates used their training as a springboard for further training or education. Forty-five percent of the recent graduates and 38% of the early graduates had obtained or were pursuing degrees beyond the A.A.S.

The implication here is that CCC & TI has not only prepared its radiography students to enter the field as competent technicians, but it has also given them adequate preparation for pursuing higher degrees if they choose to do so.

The advisory committee is apparently aware of this. Two (2) members listed the ability to transfer credits to four-year institutions as a principal strength of the program.

Recent Graduate/Employer Ratings of Skill Areas

Recent graduates rated the various skill areas of their training on a four (4) point scale with "excellent" a "4" rating and "poor" a "1" rating.

Employers were asked to rate these same skills based on their observations of our graduates in the work place. However, "dark room operation" and "radiograph evaluation" were mistakenly omitted from the employer form. Students rated both of these areas in the good-to-excellent range and neither seem to warrant particular concern.

Employers seemed most impressed with our graduates in the area of "providing patient care." This was the only area in which employers did not give a single "fair" or "poor" rating to our graduates. It received a 3.7 rating.

Graduates apparently felt the most confident in the area of "professional ethics" and gave the area their highest rating, 3.6. One (1) employer, however, was not so impressed with the professional ethics of our students. He remarked that students needed work with their attitudes and professional ethics. This respondent has employed at least fourteen (14) program graduates so his opinion is not based on an isolated case.

Advisory committee members seemed to have similar concerns about graduates. They gave a 2.7 rating to "student preparation concerning work habits, attitude and work quality." Also one remarked that students "did not have a loyalty toward institution after being employed." Another recommended that "students should be made more aware of their responsibilities to the facilities they work in as students. (This) would prepare them for the job responsibilities they will encounter later."

Employers as a group, however, rated this area 3.2, a respectable rating. Perhaps the disparity here lies in different interpretations by employers and students of professional ethics. This issue warrants further investigation by program instructors.

Both graduates and employers gave their lowest ratings, 2.6 and 2.8 respectively, to the area of equipment maintenance. Seven (7) graduates indicated

they needed further training in this area. Evidently there is a need for continuing education here even though only one (1) employer and no graduates listed this as a topic when they had the opportunity to do so.

Graduates gave their next-to-the-lowest rating, 2.7, to "calculation techniques" even though employers did not seem overly concerned about this area. Nine (9) graduates, the most in any area, indicated a need for further training. Also, three (3) gave the area "poor" ratings. This was the only area to receive more than a single low rating by graduates.

Both employers and graduates gave a 2.9 rating to "supplies maintenance" though graduates did not express a strong need for further training.

The only other specific area of particular concern was "situation analysis." Employers gave this a 2.8 rating and two (2) rated the area "poor." This was the only area which received more than a single "poor" rating by employers. On the other hand, graduates gave "situation analysis" a 3.1 rating and no "poor" ratings. Perhaps graduates are somewhat over confident of their abilities in this area.

Seven (7) of the advisory committee members indicated that their agencies had hired program graduates in the past. These members were asked to give a professional evaluation of these students. Many comments were highly complementary such as, "well qualified," "had good knowledge of didactic areas," and "performed very well on the job and I would rate them as excellent."

However, some areas of concern were also expressed. One member remarked that "theory of practice was certainly imparted but the ability to perform was not at an acceptable level to me." Another said that graduates "seem to need more clinical practice in evaluating acceptable film," and another commented that the program was "weak in clinical supervision."

Two comments were made, one by an employer and one by an advisory committee member, which seem to address the general concerns about clinical performance. The advisory member recommended that "all students graduating work at least one year in a hospital setting which would allow them to polish their skills. At the end of a year the graduates are generally good techs." This seems to be related to the dissatisfaction over beginning wages earned by recent graduates. Graduates are evidently overvaluing their initial worth as technicians as determined by employers. Perhaps students should be made aware that employers do not see them as full-fledged radiographers until they have had a year's experience.

The employer's remark probes deeper into the potential problems of clinical training. He states that, "because of the recession, most hospital staff are being cut. It needs to be pointed out to hospital administrators how much time is involved with students. The students are not getting the proper critiquing because of the 'burn out' attitude of the staff. If an institution is going to have students for clinical rotation, there needs to be personnel to have the time to work with and be responsible for students. Students should not be there to work but rather to learn."

In summary, instructors need to give more specific emphasis to equipment and supplies maintenance, calculation techniques, situation analysis, and professional ethics and attitudes. Generally, but just as importantly, program administrators and instructors need to take a closer look at the operation of the clinical training aspect of the program.

Ratings of Related Courses

Radiography students take a number of courses outside the core of technical courses. Recent graduates were asked to rate these courses.

Respondents agreed that the first aid and safety course was by far the best of the related courses giving it a 3.7 rating. Anatomy received the next highest rating at 3.3 but most courses were rated very close to the 3.0 or "good" mark except chemistry. Chemistry is not a required course and only six (6) respondents had taken it. These six (6) gave the course only a 2.2 or "adequate" rating with one "poor" rating.

Physics received a 2.9 rating overall and one (1) "poor" rating. Although anatomy and sociology also received similar ratings, an advisory committee member singled out physics as a special concern. This member felt that after a general introduction to the field of physics, radiography students need a concentration in x-ray physics.

Equipment

Recent graduates were asked if the equipment used in training was consistent with that used after graduation. Only one (1) graduate gave a "no" response to this question while 90% gave "yes" resonses. Two equipment items were suggested for the program - a Franklin head unit and a radiographic positioning doll.

Certainly one reason for the program's excellence in this area stems from the rotation of students to the multiple affiliate hospitals. Four (4) advisory committee members listed this as a principal strength of the program. Instructors tended to agree but indicated a need for some improvement in the sufficiency of on-campus equipment supplies.

Continuing Education

Both early and recent graduates, 75% and 78% respectively, stated that they had attended continuing education classes or workshops in radiography.

Employers expressed an even stronger interest. Also, all employer respondents stated that they encouraged their employees to continue their training.

In addition to graduate expressions of a need for further training in calculation techniques and equipment maintenance previously mentioned, a number of other continuing education interests were listed by graduates. Eight (8) requests were made for ultrasound, five (5) for computer tomography (CT) with another two (2) for digital radiography. These are all new modailities in the field of radiography. Another five (5) were less specific but requested up-date workshops on new developments, procedures and equipment.

Employers reinforced these requests. Three (3) requested workshops in ultrasound, and three (3) others referred to "new modalities." Also, only one employer stated he would not send employees to workshops and this was due to the distance from his institution to CCC & TI.

A complete listing of suggestions for continuing education classes made by both early and recent graduates can be found in Appendix B, question number 23. Employer suggestions can be found in Appendix D, question number 10.

Professional Development

Three (3) advisory committee members indicated that a principal need for program improvement was "provisions for upgrading technical personnel currently employed." The advisory committee respondents also gave their lowest rating (2.3) to this area.

Instructors reflected this concern. They felt that some improvement was needed in the allocation of funds for professional development but expressed even more concern about having time to take advantage of funds available. Several clinical instructors either were not aware of any professional development funds available to them or felt that this funding was not applicable to them.

Employment Outlook

Employers are optimistic about future employment possibilities for program graduates. Fifty percent predicted an increasing demand for radiographers and another 42% predicted a stable demand. Only one (1) employer predicted a decreasing demand and this respondent qualified the response by stating there would be increasing demands for ultrasound, CT, and digital radiography technicians.

One other negative comment was made by a program graduate who recommended limiting class size to six (6) students because "the area is becoming flooded with technologists."

Suggestions for Program Improvement

The major expressions of concern for program improvement made by graduates, advisory committee members and employers have already been outlined in this report. These areas center around the clinical training and supervision of students, professional ethics and attitudes of students and recent graduates, professional development of instructors, and the instructional areas of calculation techniques, situation analysis, and equipment maintenance.

Other suggestions were similar to the continuing education requests. One employer commented that the program needed to "recognize new imaging sciences and incorporate them in the program earlier."

Many other suggestions for improvement and comments about the program were made on survey returns. Graduate responses can be found in Appendix B, question number 24, employer responses in Appendix D, question 13, and advisory committee member responses in Appendix E, question 10.

Ratings of Student Support Services

Recent graduates, instructors, and the department chairperson were given opportunities to evaluate or comment on student personnel and LRC functions.

Graduates gave their highest ratings to LRC services in general. The single negative comment made by a graduate concerned noisy conditions in the library. Instructors also gave high ratings to LRC services though one (1) stated that more materials and books would be helpful. The department chairperson noted that there was no existing plan for annually evaluating LRC services. He also stated that he would like to have appropriate books and materials available in the radiography classroom for use with competency based learning modules. No suggestions were made concerning staffing or security for this function, however.

Graduates also gave high ratings to the admissions process and counseling services. Instructors generally agreed with this assessment though one remarked that potential students needed more information about the program concerning time requirements of the program and the duties of a radiologic technologist. The department chairperson also felt that adequate career counseling and information were not available for students.

Other than parking and food services which traditionally receive low student ratings, job placement received the lowest rating (2.2). Five (5) respondents did not know enough about job placement services to give a rating. Also, only one (1) employer indicated the job placement office as a main source for new employees. Instructors concurred that the job placement function needed some improvement especially in the area of communicating what services are available to students.

Graduates gave financial aid assistance a 3.0 or "good" rating but instructors gave this area the lowest general rating of any student personnel function. Also, one (1) graduate remarked that "personnel in the bookstore and financial aid office were at times discourteous." The only other negative comment about the bookstore was that it was too expensive, a complaint of the times.

Graduates also commented on their involvement in student activities. This area received a 2.8 rating. One respondent stated that efforts should be made to involve more technical students in Student Government Association (SGA) activities. Another complained that "many students pay activity fees but are unable to participate." This person suggested that activity monies should go to Sigma Tau Omega, the radiography student club. In fact, the SGA has given this club monies in the past when requested to do so.

Instructor Evaluations of Department Chairperson

Instructors gave the allied health department chairperson generally high marks in all areas. He received the highest rating, 2.9 on a three (3) point scale, on applying school policy and procedures equally to all. The chairperson was also given very high evaluations in the general area of demonstrating interpersonal skills that result in productivity.

The chairperson received the lowest rating (2.2) on his availability for assisting instructors. In this vein, one instructor commented that the chairperson could improve his assistance to instructors by "realizing that instruction fits the instructor. There is room for critical analysis and we aren't getting it."

Another instructor commented on problems in clinical site training mentioned earlier by saying, "I would like more clearly defined goals and objectives for each clinical rotation."

Conclusions

Radiography Program Strengths

This evaluation of the radiography program has identified a number of program strengths as well as program needs. The evidence is strong that the

program is meeting the general objective of preparing students for employment in the field of radiography. The supporting evidence of this as well as other program strengths are stated as follows:

1. a high rate of graduate certification (97%) by the American Association of Radiographic Technologists (AART) as reflected by survey responses;

2. a high rate of employment (85%) in the field of radiography (of the five not employed as radiographers, two (2) are physicians assistants, one (1) is a nuclear medicine technologist, one (1) prefers not to work and one (1) cannot work);

3. didactic training is strong, especially in the areas of providing patient care, radiation protection, radiograph production and assisting the radiologist (professional ethics also received high marks but with qualifying remarks by employers);

4. breadth of clinical experience for students in multiple affiliate hospitals leading to greater adaptability to varied procedures, situations and equipment;

5. significant numbers of graduates obtaining or pursuing degrees beyond the A.A.S. degree (45% of recent graduates and 38% of early graduates);

6. significant numbers of graduates (62%) employed in Caldwell or surrounding counties,

7. high ratings of the quality of instruction by graduates (32% rated it "excellent" and 56% rated it "good");

8. graduates receive good ratings from employers (33% rated our graduates as "some better" than graduates of other programs);

9. graduates will continue to be in demand based on employer predications (50% predicted increasing labor demands and another 42% predicted stable demand);

10. excelient resources and services available through the LRC; and

11. strong leadership provided by the department chairperson through fairness and excellent interpersonal skills;

Identified Program Needs:

Although evidence is strong that the radiography is strong and its graduates are in demand, definite program needs have been identified. These needs

fall into three categories: equipment, instruction and skill training, and professional development. The additional area of continuing education is included, not as a need of the program itself, but as a need expressed by employers, graduates and the advisory committee for local practitioners.

Equipment

1. Franklin head unit;
2. radiographic positioning doll;

Instruction and skill training

1. strengthened instruction in the areas of equipment maintenance, calculation techniques, supplies maintenance, and situation analysis;
2. emphasis on professional ethics and student preparation concerning employer expectations of work habits, attitude and work quality;
3. analysis and strengthening of clinical supervision of students and of the clinical experience;
4. recognition of and exposure to new modalities of ultrasound, computer tomography and digital radiography;
5. increased emphasis on x-ray physics in physics classes taken by radiography students;

Professional Development

1. increased funding and time provisions for professional development activities by instructors;

Continuing Education

1. review workshops in calculation techniques and equipment maintenance; and
2. workshops addressing new developments, procedures and equipment, especially ultrasound, computer tomography and digital radiography.

Appendix A

Summary Report of Student Follow-up

of

Radiography Graduates before 1977

and

Letter of Transmittal

Summary Report
of the
Early Graduate Questionnaire

The early graduate form was sent to twenty-seven (27) former students who graduated before 1977. Sixteen (16) graduates returned completed forms for a 59% response rate.

2. Year of completion:

1973	1974	1975	1976
5 (31%)	4 (25%)	3 (19%)	4 (25%)

3.

Day students	Evening students
15 (94%)	1 (6%)

4. Employment status while in school:

Did not work	Full-time	Part-time
6 (38%)	0	10 (62%)

Students working part-time worked from twelve (12) to thirty-six (36) hours per week. The average was twenty-one (21) hours per week.

5. Present employment status:

Employed in Radiography	Employed - not in Radiography	Unemployed
11 (69%)	3 (19%)	2 (12%)

6. Location of employment (those employed in radiography):

Service area	Outside area but in state	Out-of-state
7 (64%)	3 (27%)	1 (9%)

7. Reasons for unemployment or employment outside radiography:

In School	Prefer work in another field	Prefer not to work	Cannot work
1	2	1	1

8. If employed outside radiography, has your training been useful in present job?

Yes	No
3	0

9. Present job titles:

In field:
- Radiologic Technologist (3)
- Special Procedures Technologist
- Department Manager, Radiology (2)
- Sonographer (2)
- Imaging Coordinator
- Program Director, School of Radiation Therapy
- Chief Radiologic Technologist
- Assistant Chief of Radiology
- Chief Technologist, Special Imaging Section

Out of field:
- Physician's Assistant (2)

10–11. Current average income and satisfaction:

Income /hour		Is rate acceptable?	
		Yes	No
$7 – $8	3 (19%)	3 (19%)	0
$8 +	9 (56%)	7 (44%)	2 (12%)
No Response	4 (25%)	–	–
		63%	12%

Totals

12. Currently certified:

Yes	No	No Response
15 (94%)	0	1 (6%)

13. Ratings of quality of instruction:

Excellent	Good	Adequate	Poor	No Response
4 (25%)	10 (63%)	–	–	2 (12%)

14. If you had it to do over again, would you choose the same program?

Yes	No	No Response
11 (69%)	4 (25%)	1 (6%)

15. If you had it to do over again, would you choose CCC & TI?

Yes	No	No Response
13 (81%)	2 (12%)	1 (6%)

If no, where?
- a 4 year institution (2)

16. Attempting to obtain or have obtained degree beyond A.A.S.:

Yes	No	No Response
6 (38%)	9 (56%)	1 (6%)

If yes, where?
- Lenoir Rhyne College (Pre-medicine program)
- Mars Hill College (2)
- Duke University (2)
- Greensboro College (2)
- University of Virginia School of Radiation Oncology Technology
- University of North Carolina
- CVTC

17. Attended classes/workshops (any place) in radiography:

Yes	No	No Response
12 (75%)	2 (12%)	2 (12%)

18. Suggestions for Continuing Education classes: (see Recent Graduate Summary: Appendix B)

19. Suggestions for improving program: (see Recent Graduate Summary: Appendix B)

Caldwell Community College & Technical Institute

1000 Hickory Boulevard, Hudson, North Carolina 28638-1399
Phones: Lenoir-704/728-4323 or Granite Falls-704/396-3311
H. EDWIN BEAM, *President*

Dear Graduate:

There is no substitute for experience, and your experience on the job could be very valuable in helping to improve and update the radiological technology and nuclear medicine programs at Caldwell Community College and Technical Institute.

As an alumnus of this institution, please take a few minutes and complete and return the enclosed form. Your responses are needed by April 9. A stamped and addressed envelope is enclosed for your convenience.

All information you supply will be held in confidence, and your name will never be associated with any response. If you have any questions about this survey, please contact David Pipes at 728-4323. Your cooperation in this improvement will be appreciated.

Sincerely,

H. Edwin Beam
President

sp

Enclosure

TRUSTEES:
Chairman: John A. Forlines, Jr.; *Vice Chairman:* Donald W. Lackey; *Secretary:* Conley E. Starnes; *Treasurer:* Myron L. Moore, Jr.
Sandra M. Austin, Robert S. Belk, F. M. Dudley, T. Jack Fox, Allen R. Hefner, Brent B. Kincaid, William M. Lovelace, Jr., Linda M. McGee & SGA President

Appendix B

Summary Report of Student Follow-up

of

Radiography Graduates from 1977-1982

and

Letter of Transmittal

Summary Report
of the
Recent Graduate Questionnaire

The recent graduate form was sent to thirty-nine (39) former students who graduated before 1977. Eighteen (18) graduates returned completed forms for a 46% response rate.

2. Year of completion:

1977	1978	1979	1980	1981
3	4	2	4	5

3.

Day students	Evening students	Day/Evening
17 (95%)	0	1 (5%)

4. Employment status while in school:

Did not work	Full-time	Part-time
3 (17%)	1 (5%)	14 (78%)

Students working part-time worked from eight (8) to thirty-one (31) hours per week. The average was nineteen (19) hours per week.

5. Present employment status:

100% indicated that they worked in a job related to their training.

6. Location of employment:

Service area	Outside area but in state	Out-of-state	No Response
11 (61%)	2 (11%)	1 (5%)	4 (22%)

7. No responses since no students were unemployed or employed in a job unrelated to their training.

8. (See #7)

9. Present job titles:
   - Radiographer/Radiologic Technologist (12)
   - Chief Radiologic Technologist
   - Supervisor, Ultrasound Department
   - Assistant Director/Clinical Coordinator
   - Assistant Director, Radiology Department
   - 2nd Shift Supervisor, Radiology Department
   - Ultrasound Instructor
   - Nuclear Medicine Technologist

10-11. Current average income and satisfaction:

Income /hour		Is rate acceptable? Yes	No
$5 - $6	1 (5%)	0	1 (5%)
$6 - $7	10 (56%)	6 (33%)	4 (22%)
$7 - $8	4 (22%)	2 (11%)	2 (11%)
$8 +	2 (11%)	2 (11%)	0
No Response	1 (5%)	-	-
		55%	38%
		Totals	

12. Currently certified: - 100% of respondents

13. Ratings of training areas:

Areas	Need Further Training	(4) Excellent	(3) Good	(2) Fair	(1) Poor	Average
Providing Patient Care	1	7	9	1	-	3.4
Providing Radiation Protection	-	9	7	1	-	3.5
Radiograph Production	2	8	7	2	-	3.4
Positioning	1	11	4	2	-	3.5
Calculation Techniques	9	5	5	4	3	2.7
Dark Room Operation	-	9	7	1	-	3.5
Radiograph Evaluation	3	6	10	-	1	3.2
Assisting Radiologist	3	7	7	3	-	3.2
Situation Analysis	2	4	11	2	-	3.1
Communication Skills	2	5	10	2	-	3.3
Professional Ethics	1	11	5	1	-	3.6
Records Maintenance	-	7	7	3	-	3.2
Supplies Maintenance	4	5	7	4	1	2.9
Equipment Maintenance	7	2	8	6	1	2.6

14. Ratings of related courses:

Areas	(4) Excellent	(3) Good	(2) Adequate	(1) Poor	Not Applicable	Average
Anatomy	9	5	2	1	1	3.3
Chemistry	-	2	3	1	12	2.2
English	3	12	3	-	-	3.0
First Aid & Safety	12	6	-	-	-	3.7
Math	3	9	6	-	-	2.8
Physics	6	6	5	1	-	2.9
Psychology	5	9	4	-	-	3.1
Sociology	6	7	4	1	-	3.0

15. Equipment consistent with that used in the field:

Yes	No	No Response
16 (90%)	1 (5%)	1 (5%)

Suggested equipment needs:
- Franklin head unit
- Radiographic positioning doll

16. Ratings of student support areas:

Areas	(4) Excellent	(3) Good	(2) Adequate	(1) Poor	Don't Know	Average
Admissions Process	8	9	1	-	-	3.4
Registration Process	6	7	5	-	-	3.1
Financial Aid Assistance	4	4	3	2	5	3.0
Counseling Services	7	5	2	-	4	3.4
Career Information	6	6	4	1	1	3.0
Job Placement	1	5	5	-	5	2.2
Student Activities	5	7	4	1	1	2.9
Student Records/Transcripts	4	11	2	-	1	3.2
Bookstore	4	8	5	1	-	2.8
Parking	2	3	9	4	-	2.2
Food Services	1	5	7	5	-	2.1

Comments/suggestions:
- Bookstore is too expensive.
- Personnel in bookstore and financial aid office were at times discourteous.
- SGA should attempt to involve more technical students in their activities.
- Because of class and clinical schedules, many students pay activity fees but are unable to participate. Activity monies should go to Sigma Tau Omega.

17. Ratings of library services:

Areas	(4) Excellent	(3) Good	(2) Adequate	(1) Poor	Don't Know	Average
Books	6	10	1	-	-	3.3
Magazines	10	6	1	-	-	3.5
Audiovisual materials (films, slides, tapes, etc.)	13	4	-	-	-	3.8
Audiovisual equipment	10	7	-	-	-	3.6
Library orientation	6	8	3	-	-	3.2
Individual assistance from library staff	7	8	1	-	-	3.2

Comments:
- Library does get very noisy occasionally.

18. Ratings of quality of instruction:

Excellent	Good	Adequate	Poor
7 (39%)	9 (50%)	2 (11%)	-

19. If you had it to do over again, would you choose the same program?

Yes	No
13 (72%)	5 (28%)

20. If you had it to do over again, would you choose CCC & TI?

Yes	No
17 (95%)	1 (5%)

If no, where would you choose?
- Lenoir Rhyne

21. Attempting to obtain or have obtained degree beyond A.A.S.:

Yes	No
8 (45%)	10 (55%)

If yes, where?
- Greensboro College
- UNCC
- Western Carolina University
- Mars Hill College
- Emory University
- Georgia State University
- CCC & TI (college transfer)

22. Attended classes/workshops (any place) in radiography:

Yes	No
14 (78%)	4 (22%)

23. Suggestions for Continuing Education classes from both early and recent graduates:
- Ultrasound (8)
- Computer Tomography (5)
- Digital radiography (2)
- Computers in medicine
- Up-date workshops on new developments/procedures/equipment (5)
- Radiation protection
- Health management and administration
- CPR up-date
- Review workshops (2)
- Special Procedures
- Radiation Therapy Technology
- Wider range of Physics, Chemistry & Biology
- All areas of primary medicine
- Pharmacology ("Many times in my career I've been required to give medications, having no formal knowledge of the drug.")

24. Suggestions for improving program from both early and recent graduates:
- Radiography program should be affiliated with a college or university that would grant a degree in radiologic technology rather than allied heath.
- Earlier clinical experience for radiography students.
- Offer a decent salary so that another fully qualified instructor may be hired.
- Do away with the modules. I don't think they are a very good way to teach.
- More student-teacher contact
- Larger teaching staff
- More cooperation from affiliate hospitals
- More exposure to ultrasound
- Screen applicants better for entering health careers
- Allow students to attend more meetings held by NCSRT
- Limit class size to six (6); the area is becoming flooded with technologists
- Free copy privileges for RDT students to copy evaluation forms because certain instructors have a bad habit of misplacing papers turned in

Comments:
- The program has my recommendation. I felt confident in my training and enjoyed outside subjects of psychology, sociology and English.
- Most of the students rotating through this facility are adequately briefed on what is expected of them.

Caldwell Community College & Technical Institute

1000 Hickory Boulevard, Hudson, North Carolina 28638-1399
Phones: Lenoir-704/728-4323 or Granite Falls-704/396-3311
H. EDWIN BEAM, *President*

Dear Graduate:

You, as a former student of Caldwell Community College and Technical Institute, are one of our most valuable sources for suggestions on how to improve our radiological technology and nuclear medicine programs. Please help us to better serve students and the community by completing and returning the enclosed form by April 9. A stamped, addressed envelope is enclosed for your convenience.

If you desire to sign your name, a place is provided. If you wish for your responses to be anonymous, do not complete the name and address section of the form. All information you supply will be held in confidence, and your name will never be associated with any response. Your answers will only be part of a composite report in which individual replies are not identified.

If you have any questions about this survey, please contact David Pipes at 728-4323. Your cooperation in this improvement effort will be appreciated.

Sincerely,

H. Edwin Beam

H. Edwin Beam
President

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Enclosure

TRUSTEES:
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Sandra M. Austin, Robert S. Belk, E. M. Dudley, T. Jack Fox, Allen R. Hefner, Brent B. Kincaid, William M. Lovelace, Jr., Linda M. McGee & SGA President

Appendix C

Summary Report of Student Follow-up

of

Early Leavers

and

Letter of Transmittal

Summary Report
of the
Early Leaver Questionnaire

The early leaver form was sent to thirty-one (31) former students who did not complete requirements for graduation. Four (4) persons returned completed questionnaires for a 13% response rate.

2. Last quarter of enrollment:

Before 1979	Since 1979
2 (50%)	2 (50%)

3. Reason for discontinuing studies:
   - Personal problems (1)
   - Course of study not suited to personal interests (1)
   - Entered medical school (1)
   - Special credit student enrolled for summer (1)

4. Employment status while in school:

Did not work	Worked part-time
3 (75%)	1 (25%)

5. Present employment status:

Full-time	Unemployed
3 (75%)	1 (25%)

6. Current job titles:
   - Special procedures technologist
   - Resident M.D. in Diagnostic Radiology
   - Nurse's Aide

7. Do you use the training you received at CCC & TI in your present job?

YES	NO	NO RESPONSE
3 (75%)	0	1 (25%)

8. Ratings of quality of instruction:

Excellent	Good	Adequate	Poor
0	2 (50%)	1 (25%)	1 (25%)

9. Ratings of instruction in related courses:

Excellent	Good	Adequate	Poor	Not Applicable
0	2 (50%)	1 (25%)	0	1 (25%)

10. Have you or do you intend to continue your formal education?

YES	NO
3 (75%)	1 (25%)

If yes, in what field?
- Medicine
- Medical Technology
- B. S. degree

11. Suggestions for improvement of program:
- program could have been more organized
- classes need to be conducted better

12. Suggestions for improving student services:
- No responses

Caldwell Community College & Technical Institute

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Phones: Lenoir-704/728-4323 or Granite Falls-704/396-3311
H. EDWIN BEAM, *President*

Dear Former Student:

You, as a former student of Caldwell Community College and Technical Institute, are one of our most valuable sources for suggestions on how to improve our radiological technology and nuclear medicine programs. Please help us to better serve students and the community by completing and returning the enclosed form by April 9. A stamped, addressed envelope is enclosed for your convenience.

If you desire to sign your name, a place is provided. If you wish for your responses to be anonymous, do not complete the name and address section of the form. All information you supply will be held in confidence, and your name will never be associated with any response. Your answers will only be part of a composite report in which individual replies are not identified.

If you have any questions about this survey, please contact David Pipes at 728-4323. Your cooperation in this improvement effort will be appreciated.

Sincerely,

H. Edwin Beam
President

sp

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Sandra M. Austin, Robert S. Belk, F. M. Dudley, T. Luck Fox, Allen R. Hafner, Brent R. Ingram, William M. [illegible], Jr., Linda M. McGee, SGA President

Appendix D

Summary Report

of

Radiography Employer Survey

and

Letter of Transmittal

Summary Report
of the
Employer Survey Questionnaire

Nineteen (19) employers of radiography graduates were sent questionnaires. Twelve (12) responses were received for a 63% response rate.

	Yes	No
1. Do you now employ any graduates of the radiology/nuclear medicine programs at Caldwell Community College and Technical Institute?	10 (83%)	2 (17%)
2. Have you employed CCC & TI radiology/nuclear medicine graduates in the past? (If you answered "NO" to both #1 and #2, go to question #6.)	9 (75%)	3 (25%)

3. Approximately how many radiology/nuclear medicine graduates from CCC & TI have you ever had in your employ?

No. of graduates	No. employers
1	5 (42%)
2	2 (17%)
7	1 (8%)
10	1 (8%)
12 or more	3 (25%)

4. Please indicate your general assessment of these graduates on the following skills:

	Excellent (4)	Good (3)	Fair (2)	Poor (1)	Average
Providing Patient Care	8	4			3.7
Providing Radiation Protection	5	6	1		3.3
Radiograph Production	3	8	1		3.2
Positioning	2	8	2		3.0
Calculation Techniques	3	7	2		3.1
Assisting Radiologist	4	7	1		3.4
Situation Analysis	2	7	1	2	2.8
Communication Skills	3	7	1	1	3.0
Professional Ethics	4	6	2		3.2
Records Maintenance	2	8	2		3.0
Supplies Maintenance	2	7	3		2.9
Equipment Maintenance	3	4	4	1	2.8

5. In general, how would you rate the performance of radiology/nuclear medicine graduates from CCC & TI with graduates from other schools?

	Much better
4 (33%)	Some better
6 (50%)	About the same
1 (8%)	Slightly poorer
	Much poorer
1 (8%)	No response

6. Please state the major source(s) (schools/programs) of your current radiology/nuclear medicine employees.

7 - CCC & TI
2 - In-house programs
1 - U.S. Army trained
1 - Midwest and Atlanta
2 - No Response

7. Please state your main source(s) for new employees.

6 - Applicant applies on own initiative
5 - Mutual acquaintance
3 - College/institute faculty member
2 - Contacts at area hospitals
2 - Observing students in clinical
1 - Newspaper ads
1 - Personal contacts
1 - College/institute job placement office

8. What is your estimate of labor demands for radiographic/nuclear medicine in the next 4-5 years?

6 (50%)	Increasing demand
5 (42%)	Stable demand
1 (8%)	Decreasing demand*

*Respondent indicated increasing demand in Ultrasound, Computer Tomography and Digital.

9. Do you encourage your employees to seek continuing education in radiology/nuclear medicine? | 100% YES | NO |

10. What classes, workshops, etc. would you like to see offered through CCC & TI in the future?

- Ultrasound (3)
- New Modalities (3)
- Quality Control (2)
- Vascular Procedures
- C.A.T.
- Zero Mammography
- Special Procedures
- Nuclear Medicine for R.T.'s
- Equipment Maintenance
- Specific use of MDS A^2
- Computer Programming
- Management
- Department Budgeting

11. Would you send your employees to the classes, workshops, etc. you have suggested above? | 8 (67%) YES | 1 (8%) NO* | 3 (25%) No Response |

*Respondent stated that CCC & TI was too far away.

12. What time of day would be most convenient for your employees to attend classes, workshops, etc.?

7 (58%)	Evening classes
3 (25%)	Afternoon and evening classes
1 (8%)	Weekends
1 (8%)	Anytime

13. Please make any suggestions for improvements in or updating of the radiology/nuclear medicine programs:

- Students should spend more time at clinical sites; they rotate too often.
- Students need work with their attitudes and professional ethics.
- Recognize new imaging sciences and incorporate (them) in program earlier.
- Computer literacy.
- Cross-train diagnostic techs for ultrasound and nuclear medicine.
- Offer continuing education classes for graduates.
- Students need improvement in working with people of different backgrounds. Some students have a problem working close with a technologist that doesn't have or share their same ideals.

Other Comments:

- I feel you have an outstanding program at CCC & TI.
- We have been very satisfied with CCC & TI students we have hired.
- Because of the recession, most hospital staff are being cut. It needs to be pointed out to hospital administrators how much time is involved with students. The students are not getting the proper critiquing because of the "burn out" attitude of the staff. If an institution is going to have students for clinical rotation, there needs to be personnel to have the time to work with and be responsible for students. Students should not be there to work but rather to learn.

Caldwell Community College & Technical Institute

1000 Hickory Boulevard, Hudson, North Carolina 28638-1399
Phones: Lenoir-704/728-4323 or Granite Falls-704/396-3311
H. EDWIN BEAM, *President*

Dear Employer:

Your help is needed! We are currently conducting a study to evaluate the effectiveness of the Radiography and Nuclear Medicine programs offered to Caldwell Community College and Technical Institute students. As an employer, your opinions are valuable.

Will you please take a few minutes to complete this form and help us in our efforts to better serve students and the community? No employer will be identified in the results of this study, and all responses will be kept in complete confidence.

Your answers will help us to identify the strengths and weaknesses of our present Radiography and Nuclear Medicine programs and plan for the future. You will be making a valuable contribution to the improvement of the training of future students. Please complete and return the forms by Monday, June 7. A stamped, addressed envelope is enclosed for your convenience.

Your cooperation will be appreciated.

Sincerely,

H. Edwin Beam

H. Edwin Beam
President

clw

Enclosure

TRUSTEES:
Chairman: John A. Forlines, Jr.; *Vice Chairman:* Donald W. Lackey; *Secretary* Conley E. Starnes; *Treasurer* Myron L. Moore, Jr.
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Appendix E

Summary Report of Advisory

Committee Member Evaluations

of

Radiography Program

and

Sample Letter of Transmittal

SUMMARY REPORT
OF
ADVISORY COMMITTEE MEMBER EVALUATIONS
OF THE
RADIOGRAPHY PROGRAM

Sixteen (16) advisory committee members were given or sent evaluation forms. Eight (8) forms were returned for a 50% response rate.

Please rate the following:

	4 Excellent	3 Good	2 Adequate	1 Poor	0 Don't Know	Average
1. Student preparation for seeking employment (such as completion of application, presentation of self, interview process).		4	1	1	2	2.5
2. Student technical preparation for entry-level employment (skills and knowledge).	3	4	1			3.25
3. Student preparation concerning work habits, attitude and work quality.	1	3	3		1	2.7
4. College response to labor force and employment training needs for radiology/nuclear medicine.	3	2	2		1	3.1
5. College provision for training and upgrading personnel currently employed in radiology/nuclear medicine.	1	1	3	1	2	2.3
6. College response to changing technology and procedures in radiology/nuclear medicine.	2	4	2			3.25
7. Adequacy and relevancy of equipment and facilities used in training students.	4	3	1			3.75
8. College efforts in recruiting minority and disadvantaged students.	3	2	1		2	3.3

Please answer the questions below.
(Use extra sheets if necessary.)

9. What are the principal strengths of these programs?
   - Adaptation of program to new modalities.
   - Ability to transfer credits to four-year institutions. (2)
   - Multiple affiliate hospitals: (4)
     - for broadening experience
     - for learning different ways procedures can be done
     - for exposure to a wide variety of equipment
     - for preparing students to meet varied situations
   - Adequate classroom training to prepare students for hospital work and for national registry examinations.
   - Resources are extraordinarily good.
   - Radiologists concerned with program.
   - Early introduction to clinical experience.
   - Interest in student progress and/or problems related to the program.
   - Classes are kept small enough for individual attention yet large enough to keep in operation and supply the need.
   - Strong in didactics.

10. What are the principal needs for improvement in the programs?
    - Program of CT, Nuclear Medicine and Ultrasound for "imaging" oriented personnel offered post graduate.

- Provisions for upgrading technical personnel currently employed. (3)
- Closer screening of applicants who enter the program with a disability which would prevent them from passing a physical examination for employment.
- Students should be made more aware of their responsibilities to the facilities they work in as students. (This) would prepare them for the job responsibilities they will encounter later.
- Longer clinical time at hospitals for students.
- More time for RDT classes.
- Physics - need introduction classes and then aimed more to x-ray.
- Program is weak in clinical rotation.
- Program is weak in clinical supervision.
- Some administrative insights.

11. During the past, has your agency or office hired students from these programs?

YES 7	NO 1

If yes, what is your professional evaluation/opinion of these students?
- CCC & TI graduates are able to adapt faster to new environments due to the fact that they rotate through so many hospitals.
- Well qualified.
- Theory of practice was certainly imparted but the ability to perform was not at an acceptable level to me.
- I would recommend that all students graduating work at least one (1) year in a hospital setting which would allow them to polish their skills. At the end of a year the graduates are generally good techs.
- Seem to need more clinical practice, particularly in evaluating acceptable film. Did not have a "loyalty" toward institution after being employed.
- Had good knowledge of didactic areas.
- (Graduates) performed very well on the job and I would rate them as excellent.

12. Has your advisory committee helped to improve the instructional program in the radiology/nuclear medicine programs (such as assisting staff on curriculum development or revision, arranging field trips, identifying work experience and employment opportunities)?

YES 6	NO 0	NO RESPONSE 2

Probably not used to fullest extent - was consulted on curriculum change due to excessive hours but have not been asked about other items.

13. In what ways could the involvement of the advisory committee be increased?
- By using surveys.
- By student input - their needs, problems, critiques.
- By better attendance of all members - sometimes only a few are there.
- More committee meetings.
- A meeting with all RDT and Nuclear Medicine students would be beneficial.

14. How long have you been a member of this advisory committee?
- 1 year or less (4)
- 2 years (1)
- 6-7 years (1)
- Long time (1)
- No response (1)

15. Do you consider your membership on this committee worthwhile?

YES 6	NO 0	NO RESPONSE 2

April 20, 1982

Mr. Wade Smith, R.T.-N.
Catawba Memorial Hospital
Hickory, NC 28601

Dear Mr. Smith:

We are in the process of evaluating the radiologic technology and nuclear medicine programs here at Caldwell Community College and Technical Institute. The primary purpose of these evaluations is to find ways to improve the programs. We are also hoping that this process will tie into the upcoming JRC evaluation.

Your views as an advisory committee member are very important to us. Please take a few minutes to complete the enclosed form and return it to us in the envelope provided.

Also enclosed you will find the minutes of the last advisory committee meeting and some information concerning the program evaluation process being used at CCC & TI.

If you have any questions regarding the evaluation process or the advisory committee's role in the process, please call David Pipes at 728-4323.

Thank you for your cooperation.

Sincerely,

H. Edwin Beam
President

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Enclosures

Appendix F

Summary Report of Instructor Evaluations

of the Radiography Program,

Student Development and Support Services,

and

Department Chairperson

SUMMARY REPORT
OF
INSTRUCTOR EVALUATIONS OF THE RADIOGRAPHY PROGRAM

How would you rate the following:

	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable or Don't Know 0	Average
I. GOALS					
A. Goals and Objectives					
1. Written general program goals are:					
- Understood and committed to by administrators, counselors and instructors.	4	5			2.4
2. College planning for programs includes:					
- Participation by administrators.	4	5			2.4
- Participation by instructors, counselors and other support personnel.	2	5	2		2.0
3. Written program objectives are:					
- On file for the program and stated in measurable terms.	4	4		1	2.5
- Used to evaluate the program.	5	2		2	2.7
4. Written performance objectives are:					
- On file for courses and stated in measurable terms.	4	3	1	1	2.4
- Available to students.	7	1		1	2.9
- Used to keep students aware of progress.	4	3	1	1	2.4
B. Labor Market and Community Needs					
1. Profession /industry standards are:					
- Used as a basis for planning and evaluating the program.	7	2			2.8
- Used as a basis for planning and evaluating course content and instructional approaches.	6	1	2		2.4
2. Data on job performance requirements and trends are:					
- Kept current for the program.	5	4			2.6
- Used to develop and evaluate the program.	4	5			2.4
- Used to plan and evaluate course content.	4	4		1	2.5
II. PROCESSES					
A. Instruction					
1. Instructional approaches are adapted to:					
- Recognize occupational objectives of students.	6	3			2.7
- Meet individual needs of students.	3	6			2.3
- Provide learning assistance for students with special needs.		4	2	3	1.7
- Provide hands on, job related experience.	9				3.0
2. Related course work is:					
- Closely coordinated with the program.	6	3			2.7
- Relevant and current to needs of the student.	5	3	1		2.4
B. Articulation is Maintained with:					
- Educational institutions offering radiography programs (such as high schools, other community and four-year colleges).	4	3	2		2.2
C. Program includes economic instruction which helps the student:					
- Understand employee responsibilities and rights.	3	3	2	1	2.1
- Understand the principles of business operation and cost of doing business.	1	3	3	2	1.7

III. RESOURCES	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable or Don't Know 0	Average
A. The administrative structure provides for direction and coordination of the program through:					
– Assignment of qualified administrative personnel.	5	4			2.6
– Delineation of responsibility, authority and accountability.	4	4		1	2.5
– Assignment of time for supervisors and/or administrators to provide for planning and evaluation.	2	5	2		2.0
B. Instruction					
1. The number of instructors is adequate for teachers to:					
– Meet individual student needs.	3	4	2		2.1
– Provide liaison with advisory committees.	5	2	2		2.3
– Assist with student achievement, placement and follow up.	3	3	3		2.0
– Maintain ongoing contacts with employers and potential employers.	4	3	2		2.2
2. The instructional staff, full and part time, is qualified by:					
– Certification by ARRT, ASCP, or NMTCB.	9				3.0
3. The college encourages and supports professional development through:					
– Allocating funds for instructor participation.	1	2	2	4	2.2
– Making time available for instructor participation.		4	2	3	1.7
C. Equipment and Facilities					
1. Equipment used on campus for the programs is:					
– Representative of that used in jobs for which the students are being trained.	6	1	2		2.4
– Safe, functional and well maintained.	6	2	1		2.6
– In sufficient supply to serve the needs of the students in the program.	4	3	2		2.2
2. Instructional facilities (excluding equipment) used for the program:					
– Are functional for the program.	5	3		1	2.6
– Meet the needs of the students.	5	3		1	2.6
– Are flexible and adaptable to changing instructional approaches and special student requirements.	5	3		1	2.6
– Meet safety standards.	5	2		2	2.7
– Are functional for advising students.	5	2	1	1	2.5
3. Scheduling of facilities and equipment for the program:					
– Is planned for optimum use.	6	3			2.7
– Supports quality instruction.	6	3			2.7
4. Instructional materials are:					
– Sufficient in quantity.	4	3	1	1	2.4
– Current and relevant to the program.	6	1	2		2.4
– Varied.	7	2			2.8
– Available and accessible to students.	5	2	1	1	2.5
– Selected to avoid sex bias, stereotyping and discrimination.	7	1		1	2.9
D. Advisory Committees					
– Are representative of the program for which training is provided.	5	4			2.6
– Provide input on course content, program modification, instructional materials and equipment, student employability and placement.	2	6	1		2.1
– Meet at least annually.	5	4			2.6

E. The Operational Budget for the Program
- Is planned with instructor input.
- Is adequate for achieving program objectives.
- Is based on program priorities.
- Supports scheduled equipment replacement and repair.

Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable or Don't Know 0	Average
	6		3	2.0
1	5	1	2	2.0
2	4		3	2.3
1	4	1	3	2.0

INSTRUCTOR PERCEPTIONS OF STUDENT
DEVELOPMENT AND SUPPORT SERVICES

Rating Scale

3 - NEEDS VERY LITTLE IMPROVEMENT
2 - NEEDS SOME IMPROVEMENT
1 - NEEDS TO IMPROVE
0 - NOT APPLICABLE

	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable or Don't know 0	Average
A. Admissions					
1. Is thoroughly familiar with school policy and procedures.	3	3	1	2	2.3
2. Applies policies and procedures equally to all personnel and programs.	5	2	1	1	2.5
3. Is familiar with the curriculum goals and objectives of the program.	4	3	1	1	2.4
4. Provides accurate information to students and prospective students about the program.	4	1	3	1	2.1
5. Students and potential students desiring enrollment in the program are:					
- Identified through recruitment activities.	5	2	1	1	2.5
- Counseled on employment opportunities.	4	2	2	1	2.3
- Not impeded by unrealistic prerequisities or costs.	3	4	1	1	2.3
6. Utilizes effective interpersonal communications skills.	2	3	1	3	2.2
B. Counseling and Guidance Services.					
1. Available and accessible for all students in the program - day or night.	4	3	1	1	2.4
2. Are provided by a qualified, knowledgeable staff.	6	2		1	2.8
3. Use a variety of resources that are relevant to student needs.	5	2		2	2.7
4. Are available on a regular basis to you for counsel and assistance regarding student problems.	5	3		1	2.6
5. Are effective in assisting you with problem situations.	6	2		1	2.8
6. Provide appropriate feedback to you after counseling with student.	6	1	1	1	2.6
7. Utilize effective interpersonal communication skills.	6	1		2	2.9

	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable or Don't know 0	Average
C. Registrar					
1. Maintains a student record system that provides for effective work with the students.	5	2		2	2.7
2. Provides an orderly student registration system.	4	2	1	2	2.4
3. Provides an effective system for receiving and processing student quarterly grades.	5	2		2	2.7
4. Utilizes effective interpersonal communications skills.	4	1		4	2.8
D. Financial Aid Officer					
1. Provides positive assistance to students in need of financial aid.	2	2	2	3	2.0
2. Adequately communicates available financial aid information.	2	3	2	2	2.0
3. Utilizes effective interpersonal communication skills.		3	2	4	1.6
E. Job Placement					
1. Effectively communicates the services offered through the job placement.	1	4	2	2	1.9
2. Effectively assists you in the placement of students.	2	3	2	2	2.0
3. Provides feedback to you about results of placement effort.	2	3	2	2	2.0
4. Prepares program completers desiring employment to apply for a job.	2	3	2	2	2.0
5. Utilizes effective interpersonal communication skills.	1	2	1	5	2.0
F. Media Services					
1. Provides adequate audio visual materials.	4	2	1	2	2.4
2. Provides current and relevant audio visual materials.	4	2	1	2	2.4
3. Provides a full range of media services to assist the instructor.	4	2	1	2	2.4
4. Is available to assist and consult with you on your media needs.	6	1		2	2.9
5. Maintains an adequate inventory of media equipment.	6	1		2	2.9
6. Provides effective assistance when requested.	6	1		2	2.9
7. Provides library orientation when requested.	6	1		2	2.9
8. Provides adequate variety of appropriate periodicals.	4	2		3	2.7
9. Utilizes effective interpersonal communication skills.	5	1		3	2.8

	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable or Don't know 0	Average
G. LRC - Printing Service					
1. Reproduces and collates teacher tests and other instructional materials efficiently.	6	1		2	2.9
2. Schedules work and produces within requested time limit.	5	1	1	2	2.6
3. Produces work of good quality.	6	1		2	2.9
4. Assists instructors in reproducing materials.	6	1		2	2.9
5. Utilizes effective interpersonal communication skills.	4	1	1	3	2.5
H. Life Skills Center					
1. Has effectively communicated the services available to you and to students.	2	2	2	3	2.0
2. Students who have completed developmental studies generally have the same basic skills as other students.	2	3	1	3	2.2
3. Provides meaningful help to students who are referred.	2	2		5	2.5
4. Utilizes effective interpersonal communication skills.	2	2	1	4	2.2

I. Please make any constructive comments that would improve these services to better meet your needs and the needs of the students.

- Potential students need more information about the program, espeically time requirements and the duties of a radiologic technologist. Most students do not seem to understand the complexity of the field.
- More reading materials and books would be helpful in the LRC for research and learning.

INSTRUCTOR EVALUATION OF
DEPARTMENT CHAIRPERSON

Rating Scale

3 – NEEDS VERY LITTLE IMPROVEMENT
2 – NEEDS SOME IMPROVEMENT
1 – NEEDS TO IMPROVE
0 – NOT APPLICABLE

Date _____

The Department Chairperson	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable 0	Average
A. Generic and Support Considerations					
1. Is thoroughly familiar with school policies and procedures.	7	2			2.8
2. Applies school policy and procedures equally to all.	7	1			2.9
3. Provides the teacher with assistance in acquiring necessary materials, supplies, and equipment.	3	5		1	2.4
4. Is available on a regular basis to assist instructors.	3	4	1	1	2.2
5. Demonstrates an ability to work through problem situations.	6	1	1	1	2.6
6. Provides leadership by example.	6	1	2		2.4
7. Is dedicated to making your instructional program as efficient as possible.	6	2		1	2.8
8. Demonstrates interpersonal skills that result in productivity by:					
a. Seeking feedback and information.	7		1	1	2.8
b. Diagnosing individual and group problems.	8		1		2.8
c. Resolving conflicts.	8		1		2.8
d. Utilizes effective interpersonal communication skills.	5	1	1	2	2.6
e. Controls his/her emotions when things are not going well.	6	1	1	1	2.6
f. Encourages questions and considers viewpoints that differ from his/her own.	8		1		2.8
9. Demonstrates decision making skills by:					
a. Seeking related information from a variety of sources.	6	1	1	1	2.6
b. Consulting with those whom the decision affects.	6	1	1	1	2.6

	Needs very little improvement 3	Needs some improvement 2	Needs to improve 1	Not applicable 0	Average
c. Identifying alternative strategies and consequences.	7	1	1		2.7
d. Selecting and implementing a strategy.	5	2	1	1	2.5
10. Observes program operation and individual instructors on a regular basis so as to be in position to offer appropriate assistance.	5	3	1		2.4
B. Curriculum and Instruction					
1. Is familiar with the objectives and curriculum of your program.	6	3			2.7
2. Continuously emphasizes curriculum development and instructional improvement.	6	1	1	1	2.6
3. Assists instructional personnel in writing goals and objectives.	4	2	2	1	2.3
4. Assists instructional personnel in developing strategies and skills in classroom management.	5	1	1	2	2.6
5. Provides leadership and assistance in the improvement of teaching techniques employed by individual instructors.	4	2	1	2	2.4
C. Professional Growth					
1. Works with the instructors to develop appropriate staff development plans that are designed to meet the identified needs.	3	4	1	1	2.3
2. Participates in formal evaluations that identify the needs of individual instructors and their programs.	6	3			2.7
3. Makes individuals aware of the results of evaluation and needs assessments conducted.	6	2		1	2.8
4. Seeks and utilizes suggestions from staff for improvement.	6	2		1	2.8

5. Please indicate below any constructive suggestions that will assist your department chairperson to improve his/her assistance to you.

- As a clinical instructor, I would like more clearly defined goals & objectives for each clinical rotation.
- Everyone has been very helpful to me since I began teaching. If I need help I know I can count on the staff.
- Realizing instruction fits the instructor. There is room for critical analysis and we aren't getting it.

Appendix G

Supervisory Evaluation

of

Radiography Program, Learning Resource Center,

Student Development

and

Life Skills

SUPERVISORY EVALUATION OF RADIOLOGICAL TECHNOLOGY PROGRAM

Date May 21, 1980

This evaluation is to be done by the Department Chairperson. Please respond "yes" or "no" to each item. Respond "NA" if this question is not applicable. All standards not met are to be explained on the last page, along with any comments or suggestions for improvements.

PROGRAM

yes 1. There is a copy of the school catalog, available for use by faculty and students, which contains the philosophy and purpose of the institution, and the goals, objectives, and description of the program.

yes 2. The program reflects the philosophy and purpose of the institution and the needs of the students.

yes 3. Admissions requirements are reasonable in relation to expectations of student success.

yes 4. There is evidence (e.g. minutes, etc.) of annual advisory committee meetings.

yes 5. The advisory committee provided advice which addressed at least one problem within the academic year.

yes 6. The institution responded to recommendations made by the advisory committee within the last academic year.

yes 7. The instructional program provides learning experiences for skills development that is essential for entry level into the occupational field.

yes 8. Within the classrooms, shops, and laboratories, there is evidence that instruction has been properly organized.

yes 9. Teaching methods and procedures make provisions for individual differences and needs.

yes 10. To ensure skill proficiency, sufficient practice is provided for the student with appropriate and suitable equipment similar to that currently accepted in business and industry.

yes 11. Health emphasis, job safety, and fire prevention are an integral part of instruction.

yes 12. Records showing the progress of the individual student are maintained.

yes 13. There is a continuous effort by instructors to determine the reliability and validity of the methods of evaluation.

yes 14. Course outlines and behavioral objectives have been developed and are utilized.

yes 15. There is evidence of liaison between each instructor and the respective business or industry.

yes 16. Existing facilities include adequate space and utilities in classrooms, laboratories, and shop areas which provide for safe and orderly instruction.

yes 17. There is adequate light, heat, and ventilation in all areas of the facility with particular attention to conditions which might adversely affect health and safety.

yes 18. Existing facilities are well maintained.

yes 19. Proper equipment and adequate instructional and non-instructional supplies are made available to support the instructional program.

yes 20. Equipment selected represents the quality and type currently used by business and industry.

yes 21. The program has a system of supply and equipment inventory which includes instructional and non-instructional items.

yes 22. All instructional equipment and supplies meet appropriate safety standards.

No 23. First aid supplies are readily available and accessible.

yes 24. Procedures for handling emergencies are clearly understood by program personnel.

yes 25. There is evidence in the department that a follow-up of former students is conducted periodically.

yes 26. Related support courses outside the core curriculum are relevant to desired program outcomes.

yes 27. There is evidence of cooperation between departments to insure the proper scope and sequence of related support courses.

LEARNING RESOURCE CENTER (LRC)

yes 28. The LRC provides library orientation upon request.

yes 29. The learning resource center includes sufficient materials for program instruction.

yes 30. The audio visual equipment and materials in the LRC are appropriate for the needs of the program.

yes 31. LRC materials include such items as audio visual aids and equipment; reference books; industrial and technical manuals; and trade, technical, and professional periodicals.

yes 32. A current collection of program materials is maintained by the LRC.

NO 33. A plan exists for annually evaluating the services of the learning resource center.

yes 34. The LRC atmosphere is conducive to student utilization of LRC resources.

Please make any comments or suggestions for improving the library services listed above.

Would like to have books & materials in Radiology classroom for use on modules.

STUDENT DEVELOPMENT & SUPPORT SERVICES

yes 35. Recruitment of students for the program is sufficient.

yes 36. The program receives timely publicity through brochures, news releases and other sources.

yes 37. The admissions process is efficient and equitable.

yes 38. Registration of students is efficient and causes a minimal amount of confusion for students.

yes 39. Students have access to financial aid information and resources.

yes 40. Adequate academic counseling is available for students.

yes 41. Adequate personal counseling is available for students.

yes 42. Job placement of students is satisfactory.

yes 43. Student records/transcripts are maintained and transmitted in a confidential and timely manner.

yes 44. The bookstore keeps adequate operating hours to serve student needs.

yes 45. The bookstore handles textbook and supply requests in an efficient and timely manner.

Please make any comments or suggestions for improving student development and support services.

LIFE SKILLS

No 46. Adequate career counseling & information is available for students.

yes 47. The Testing Center handles testing and placement of entering students in an efficient and confidential manner.

yes 48. The Testing Center meets the instructional needs of the program instructors.

yes 49. Developmental students are properly advised and placed in appropriate courses.

yes 50. Developmental students are adequately prepared to enter the program.

No 51. The faculty, staff and students are made aware of the services available through the Advancement Lab (tutoring, etc.).

Please make any comments or suggestions for improving the life skills services listed above.

Please attach any suggestions for improving areas needing corrective action.

ERIC Clearinghouse for Junior Colleges
96 Powell Library Building
University of California
Los Angeles, California 90024